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## United States Department of Agriculture,

BUREAU OF PLANT INDUSTRY,

Forage-Crop Investigations,

WASHINGTON, D. C.

**BERMUDA GRASS** (*Cynodon dactylon*).

## INTRODUCTION.

Bermuda grass is native to India and perhaps other parts of the Old World in tropical and subtropical regions. In Virginia, and even in places farther southward, where its troublesome qualities are apt to overbalance its value as forage, it is often called wire-grass. It is also known as dog's-tooth grass, Bahama grass, and Scotch grass. In India it is highly valued for pasturage under the names "doob" and "hariali." Bermuda grass was already established in the United States in 1807.

## CHARACTERISTICS.

Bermuda grass (fig. 1) is a long-lived perennial with numerous branched, very leafy stems, 4 to 6 inches high, or under favorable conditions 12 to 18 inches high. Where the aerial stems are supported, as by shrubs, they sometimes reach a height of 3 feet. The creeping stems are either on or beneath the surface, depending on conditions and the variety. At the base of each leaf blade is a circlet of hairs, by which it is at once distinguished from any similar grass.

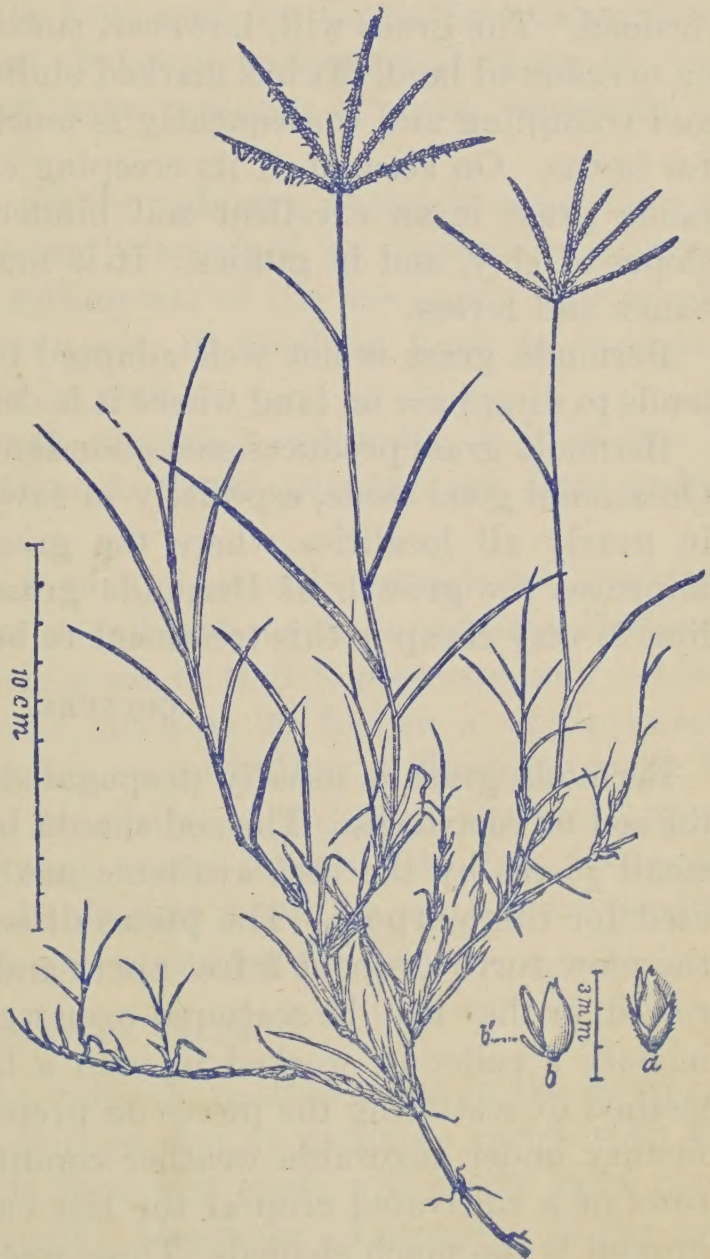


FIG. 1.—Bermuda grass.



## ADAPTATIONS.

Bermuda grass now occurs generally in the United States from the south line of Pennsylvania west to southeastern Kansas and southward; also in Arizona, New Mexico, and California, especially on irrigated lands. The grass is also found northward of the limits indicated, but in the North it rarely survives the winter. In the fall it promptly turns brown with the first hard frost.

In general, Bermuda grass is well adapted to approximately the same area as that of commercial cotton, and in this region it has the same relative importance as Kentucky bluegrass in the North. In California and Arizona the grass is feared, owing to its aggressiveness in alfalfa fields, and it is there sometimes called "devil grass."

Although Bermuda grass will grow in all types of soil it gives its largest yields on rich, moist bottom lands; but the soil must be well drained. The grass will, however, survive for a considerable period on overflowed land. It has marked ability to withstand close grazing and trampling and consequently is much used for pastures and also for lawns. On account of its creeping character and rootstocks Bermuda grass is an excellent soil binder on sandy soil, on eroding slopes of clay, and in gullies. It is much used for this purpose on banks and levees.

Bermuda grass is not well adapted to shade, and for this reason tends to disappear on land where it is densely shaded by other plants.

Bermuda grass produces seed abundantly only in very dry climates. Occasional good seeds, especially in favorable seasons, may be found in nearly all localities where the grass thrives. Liming the soil improves the growth of Bermuda grass somewhat, but only where lime is very cheap is this treatment to be recommended.

## CULTURE.

Bermuda grass is usually propagated by planting small pieces of the sod or rootstocks. The sod should be lifted shallow and cut into small pieces by the best available method. A feed cutter is often used for this purpose. The pieces of sod may be scattered along in the plow furrows about 2 feet apart and the ground afterwards harrowed, or they may be scattered over well-prepared land and pressed in with a roller or worked in with a harrow. In fact, almost any method of scattering the pieces on prepared ground will prove satisfactory under favorable weather conditions. Planting between the rows of a cultivated crop at the last cultivation succeeds unless the ground is too much shaded. These methods of propagation may be used at any time from corn-planting time till late summer. The grass should cover the ground fully the first season and in good land will furnish some pasturage, but a full yield will not be secured until the second season.



Seed of Bermuda grass is produced in Australia and in Arizona, the latter being usually better in quality. It now sells for 35 to 90 cents a pound, wholesale. The seed is very fine, and in sowing it should be mixed with fine soil or something similar, to increase the bulk so that it may be sown more evenly and not wastefully. About 5 pounds of good seed to the acre should be used. As yet seed has not been much used, owing to its cost. Where large fields are to be planted it is, however, cheaper than other methods. The seed should be sown only on a well-prepared seed bed and then rolled or harrowed in very lightly. It should be sown after the ground is well warmed in spring or at any time thereafter till late summer.

#### VARIETIES.

Bermuda grass is quite variable, and numerous strains can be secured by selection and easily kept pure by vegetative propagation. Ordinary Bermuda grass has abundant underground stems, or rootstocks, but in addition may have creeping runners, especially on compact soil.

Hardy Bermuda grass is simply ordinary Bermuda grass near its northern limit. It has apparently acquired its maximum resistance to winter cold through the killing out of the less hardy individuals. When Bermuda grass is grown near its northern limit the local and therefore hardy stock should be used.

St. Lucie grass is a variety occurring especially in Florida. It much resembles ordinary Bermuda grass, but does not form underground rootstocks.

Giant Bermuda grass is a variety recently introduced, probably from Brazil. It grows twice as tall and coarse as ordinary Bermuda grass, but resembles St. Lucie grass in that it possesses only surface runners. These may grow as much as 20 feet in a single season. This variety is somewhat tender, winterkilling at Washington, D. C. It may be destroyed quite as easily as ordinary Bermuda grass. Giant Bermuda grass is of very recent introduction, but the results already secured make it probable that it will be much more productive than ordinary Bermuda grass, at least for hay.

#### PASTURE VALUE.

Bermuda grass is the most valuable pasture plant in the Southern States. The amount of pasturage that it produces varies with the soil, but on comparable soils Bermuda grass will easily yield twice as much pasturage as Kentucky bluegrass. Lespedeza is the best plant to grow in mixture with Bermuda grass, and when once established it reseeds itself each year. The best Bermuda grass and lespedeza pastures will carry two head of cattle to the acre during the summer.



Bermuda grass and lespedeza both cease growth after the first frost, but white clover, bur clover, vetch, and Italian rye-grass may all be used to supply winter pasturage on the same land. White clover will provide much pasturage in winter and spring; while it disappears in midsummer, the roots usually live over. Bur clover when once established reseeds itself year after year. Narrow-leaved or "native" vetch is also valuable in the same way. Hairy vetch behaves much like narrow-leaved vetch, but does not reseed itself as well. Italian rye-grass will provide winter pasturage on Bermuda sod, but must be sown each fall. The growing of any or all of these winter-pasture plants does not injure the Bermuda grass at all. It is highly desirable that some of the above-mentioned winter crops be established in a Bermuda-grass pasture, particularly white clover and bur clover, which so readily maintain themselves. All of the winter-pasture plants mentioned should be sown in the fall, if not already established.

Old Bermuda-grass pastures tend to become sod bound and to produce lessened yields. When this is the case the field should be disked or else plowed and harrowed, the effect of which will be to make the growth much greater.

#### HAY.

On good land, especially in bottoms, Bermuda grass often grows tall enough to cut for hay. The average yield is probably not over 1 ton per acre, but on the best fields three cuttings, yielding a total of 3 or 4 tons, or even more, may be secured. The feeding value of the hay is about the same as that of timothy.

#### ERADICATION.

Bermuda grass is somewhat difficult to eradicate when the field is wanted for other uses. With proper management, however, eradication is usually not a serious matter. It is difficult to kill it with even the most persistent cultivation, but it is easily destroyed by any dense smothering crop which keeps it heavily shaded. Plowing the ground in late summer, sowing winter oats or oats and vetch, and following that with a summer crop of cowpeas or velvet beans will kill nearly all of the grass. This method will furnish two profitable crops, besides putting the soil in fine condition for any succeeding crop.

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APRIL 20, 1916.